

ancient land, and the corals and shells of a former ocean. Everywhere the scarred and wasted rocks tell of the degradation of the solid land, and show us how the waste goes on. Let us then carry into our task some share of the enthusiasm which these daily exemplars called forth in earlier days. Let us turn from the lessons of the lecture-room to the lessons of the crags and ravines, appealing constantly to Nature for the explanation and verification of what is taught. And thus, whatsoever may be your career in future, you will in the meantime cultivate habits of observation and communion with the free fresh world around you—habits which will give a zest to every journey, which will enable you to add to the sum of human knowledge, and which will assuredly make you wiser and better men.

SOCIETIES AND ACADEMIES

LONDON

Zoological Society, November 7.—Prof. Newton, F.R.S., vice-president, in the chair. The secretary read a report on the additions that had been made to the society's menagerie during the months of June, July, August, and September 1871, amongst which were specimens of the Tamandua Ant-eater (*Tamandua tetradactyla*), Baird's Tapir (*Tapirus bairdi*), and several other animals of special interest.—A communication was read from Mr. Gerard Krefft, Curator of the Australian Museum, Sydney, N.S.W., containing notes on a rare Ziphioid Whale, which had been stranded near Sydney, and which appeared to be referable to *Ziphius layardi*.—Mr. Gould exhibited and characterised a small but lovely Fruit Pigeon from the Fiji Islands, which he proposed to name *Chrysena victor*.—Mr. Sclater called attention to the supposed existence of an undescribed animal, of about the size of a Dingo, in the Rockingham Bay district of Queensland, and read a letter addressed to him by Mr. Brinsley G. Sheridan, containing particulars on this subject.—Dr. John Anderson, of Calcutta, communicated a description of a short tailed Macaque from Upper Burmah, supposed to be new, which he proposed to call *Macacus brunneus*.—A communication was read from the Viscount Walden on a new and interesting Falconine Bird, of the genus *Polihierax*, recently obtained by Major Lloyd, in the vicinity of Tongoo, Upper Burmah, and proposed to be called *Polihierax insignis*.—Mr. W. H. Flower, F.R.S., read a memoir on the recent Ziphioid Whales, among which he proposed to recognise the following generic types:—*Hyperoodon*, *Ziphius*, *Mesoplodon*, and *Berardius*. This was followed by a description of the skeleton of *Berardius arnouxii*, founded on a specimen lately transmitted to the Museum of the Royal College of Surgeons from New Zealand by Dr. J. Haast, F.R.S.—Mr. Herbert Taylor Usher read some notes on the habits of the Horned Viper (*Vipera nasicornis*), as observed by him in the vicinity of Cape Coast Castle, Western Africa.—Prof. Newton read a notice of a remarkable peculiarity which he had recently discovered in an Australian duck, *Anas punctata*, viz., that in this species the osseous development of the lower trachea was common to both sexes.—A paper by Dr. J. C. Cox, of Sydney, was read, describing a new Volute and twelve new species of Land Shells from Australia and the Solomon Islands.—A communication was read from Surgeon Francis Day, Inspector-General of Fisheries of British India, containing some remarks on the identification of certain species of Indian Fishes.—Mr. P. L. Sclater, F.R.S., read some notes on Pelicans, being supplementary to a previous paper on the same subject read at a meeting of the society in May, 1868.—A communication was read from Mr. J. Brazier, of Sydney, containing descriptions of eight new Australian Land Shells.—Prof. Newton communicated a paper by Dr. J. Murie, containing supplementary notes concerning the powder-down patches of *Rhinocetus jubatus*.

Anthropological Institute, November 6.—Sir John Lubbock, Bart., F.R.S., president, in the chair. Mr. M. Allport, F.R.S., was elected a corresponding member for Tasmania.—Mr. J. W. Flower, F.G.S., treasurer, read a paper "On the relative ages of the Flint and Stone Implement Periods in England." In this paper, which was illustrated by the exhibition of a series of various kinds of flint implements, the author proposed to show, that having regard to recent discoveries, the arrangement hitherto adopted regarding the Prehistoric Stone period in England as divisible into the Palæolithic and Neolithic was altogether inadequate, and that as well on Geological as on Palæontological grounds the drift period was separable by a vast interval from that of the bone Caves, as the cave period was separable from

the Tumulus or Barrow period. The author adduced various reasons for believing that the implements were made and the drift gravel was thrown down long before this island was severed from the Continent, and that thus before that event both countries were inhabited. He also contended, on this and other grounds founded upon recent discoveries, that the implements could not have been transported (if transported at all by fluvial action) to the places in which they are found by any rivers flowing in the same channels and draining the same areas as now; and he also expressed doubts whether the gravels were transported by river action, and also whether the makers of the implements were contemporary with the Mammalia with whose remains they were associated; the gravel and the fossils having been evidently carried from considerable distances, whereas the implements were made on the spot from stones taken from the gravel. Mr. Flower then pointed out that the works of art found in the caves, as well as the animal remains, differed in many important particulars from those found in the drift, and that those of the Tumulus period differed entirely from those in the caves; that in truth the cave fauna had then quite disappeared, and had been succeeded by one entirely different, including most of our domestic animals, and that for effecting such a change an interval of long duration must be allowed. He also pointed out that the use of bronze was common to both what were known as the Palæolithic and Neolithic periods, and could not be regarded therefore as it usually has been, as distinct from and posterior to both; and, in conclusion, he suggested that the drift period might properly be termed Palæolithic, that of the caves as Archaic, that of the Tumuli as Prehistoric, whilst that of the polished stones might still be known as Neolithic.

Geologists' Association, November 3.—The Rev. Thomas Wiltshire, M.A., F.G.S., president, in the chair. "On the old Land Surfaces of the Globe," by Prof. Morris, F.G.S. The indications of land surfaces to be found in Palæozoic, Mesozoic, and Cainozoic strata were recapitulated. Conglomerates and ripple marks, as well as the great thickness of the oldest sedimentary rocks, the result of denudation, clearly show the existence of land during Cambrian and Silurian times. Though there are indications of vegetable life in Cambrian rocks, the earliest remains of vegetable organisms allied to our present land plants occur in the uppermost Silurian Strata, or passage beds. The Old Red sandstone of Scotland affords evidence of fresh-water origin, and consequently of lakes and land. But in carboniferous rocks we have in the vast accumulations of vegetable remains forming the great coal beds of the world, perhaps the most striking and conclusive proof of land and terrestrial conditions to be found in the geologic record. After noticing the indications of land in the Permian rocks, the Mesozoic reptilia and mammalia, as well as the many other evidences of land surfaces to be met with in the Secondary rocks, were dwelt upon; and a similar review of Cainozoic, or Tertiary, terrestrial indications was followed by an exposition of the upward and onward progress of life, culminating in the present conditions of the globe with a flora and a fauna admirably adapted to the wants of the latest addition to the marvels of the universe, man, whose duty it is, and whose pleasure it ought to be, to study those successive changes, the grand result of which he now enjoys.—A note "On recent exposure of the Glacial Drift at Finchley" was read by Mr. H. Walker. This was a brief notice, and intended as an introduction of the subject, which will be more fully elucidated in a paper by the same author to be read at the next meeting of the association.

Society of Biblical Archæology, November 7.—Dr. S. Birch, president, in the chair. Dr. Richard Cull, F.S.A., read a paper contributed by Mr. Henry Fox Talbot, F.R.S., "On the Religious Beliefs of the Assyrians."—Mr. R. Hamilton Lang, H.B.M. Consul at Cyprus, read a paper "On the Discovery of some Cypriote Inscriptions." After stating that the credit was due to Duc de Luynes of having proved the existence of a Cypriote alphabet, he enumerated the various inscriptions which he had himself discovered, and drew especial attention to one, a bi-lingual inscription in Phœnician and Cypriote, which he first discovered during the excavation of a temple at Idalion. The alphabet, which had been compiled by the Duc de Luynes, consisted of 80 letters, but Mr. Lang felt justified in reducing that number to 51, and exhibited an alphabet which he believed to contain all the Cypriote characters of which we are at present certain. In proceeding he dwelt at some length upon an apparent resemblance between

the Cypriote and Lycian alphabets, and stated that they were both derived from the same source, the Lycians having however engrafted upon the ancient forms a great many Grecian Letters, while in Cyprus the character was preserved in its original fullness and power. Mr. Daniel Sharpe had endeavoured to prove that the Lycian alphabet was of Indo-Germanic origin, and so also might be the Cyprian. Mr. Lang alluded to the attempt which had been made both by De Luynes and von Rôth to read the Cypriote writing, especially as regarded a word which both gentlemen agreed in rendering "Salamis," and which they considered to be the key to the Cypriote characters. Mr. Lang, on the contrary, gave his reasons for dissenting from this reading upon the testimony of coins, and showed why he thought that the word should be read as "King." The evidence of the bi-lingual inscription before referred to was dwelt upon in confirmation of this reading. A resemblance was further pointed out between the word translated "king" by Mr. Sharpe in Lycian, and that proposed to be read in the same way in Cypriote, and a reading was suggested for the whole of the first line in the Cypriote part of the bi-lingual inscription. Many other points of interest connected with this alphabet were also detailed, and Mr. Lang concluded by observing that in it "we have a child long lost both to the sight and knowledge of the world, and he felt convinced that more extended research would prove that the pedigree of the foundling was of more than usual philological interest and importance."—Mr. G. Smith then read a paper "On the Decipherment of the Cypriote Inscriptions," in which, after alluding to the antiquities discovered by General Cesnola and Mr. Lang, particularly the bi-lingual inscription already mentioned, he went on to detail the discovery of the values of eighteen Cypriote signs from that inscription alone. He further related the discovery of the sounds of twenty other signs by comparison of various texts, together with the reading of the names "Idalion Citium Evagoras," and many others. His conclusions were that the Cypriote language belonged to the Aryan group, and was written with about fifty-four syllabic signs. Diagrams showing case endings of nouns, proper names, and part of the bi-lingual inscription, illustrated the paper. A collection of electrotypes of the Cypriote coins referred to in the foregoing papers was exhibited by Mr. Ready of the British Museum.

PARIS

Academy of Sciences, November 6.—A memoir was read by M. A. Mannheim on the properties relating to the infinitely small displacements of a body when these displacements are only defined by four conditions, and one by M. Maurice Lévy on the integration of equations with partial differences relating to the internal movements of ductile solid bodies, when these movements take place in parallel planes.—M. Phillips also communicated a memoir containing a summary of observations made during the last seven years at the Observatory of Neuchâtel upon chronometers furnished with spirals with theoretical final curves.—M. P. A. Favre presented a continuation of his thermic investigations upon electrolysis. This paper contains chiefly the results of experiments upon various acids.—General Morin communicated a paper by M. H. Tresca on the effects of torsion prolonged beyond the limits of elasticity.—M. Le Verrier communicated a note on the observation of the flight of meteors of the 12th, 13th, and 14th of this month at the stations of the French Scientific Association.—M. E. Peligot presented a further memoir on the distribution of potash and soda in plants, upon which MM. Dumas and Chevreul made some remarks.—M. I. Pierre presented some observations on the solubility of chloride of silver, with reference to the note on this subject recently communicated by M. Stas.—M. Peligot communicated a note by M. J. Bouis on the determination of hydrochloric acid in cases of poisoning, in which he recommends the heating of the filtered liquids in contact with a plate of gold after the addition of a few fragments of chlorate of potash. The dissolution of the gold indicates the presence of hydrochloric acid, and it is determined by means of protochloride of tin.—M. Berthelot presented a note on the formation of precipitates, in which he commenced the discussion of the phenomena connected therewith, and noticed especially the heat evolved or absorbed during the formation of a solid compound, and the dehydration of precipitated compounds.—A note by M. F. Cayrol on the Lower Cretaceous formation of Corbières was presented by M. Milne-Edwards. The author compared this formation with that of the Clape, formerly described by him, and stated that it consisted in ascending order of a marly clay containing *Orbitolina*, a thick limestone with *Requienia Lonsdalii*, and a second *Orbitolina*-zone, the latter overlain by the Gault.—A note by M. Guido

Susain was also read on an improved method of managing the egg-laying of the silkworm moth.—The tables of meteorological observations made at Paris in October was communicated to the Academy.

BOOKS RECEIVED

ENGLISH.—The Student's Manual of Geology: Jukes and Geikie; 3rd edition (Edinburgh: A. and C. Black).—A Treatise on the Origin, Nature, and Varieties of Wine: Thudichum and Dupré (Macmillan and Co.).—Lights and Shadows of a Canine Life, by Ugly's Mistress (Chapman and Hall).—The Ornithology of Shakespeare: J. E. Harting (Van Voorst).—The Royal Institution; its Founder and its Professors: Dr. Bence Jones (Longmans and Co.).

AMERICAN.—Illustrated Catalogue of the Museum of Comparative Zoology at Harvard College; No. 4.—Deep-Sea Corals: Count Pourtales.

FOREIGN.—Mémoires de la Société de Physique et d'Histoire Naturelle de Genève; Tome xxi.—Nachtrag zum 6. u. 7. Jahresbericht des Vereins für Erdkunde zu Dresden.—Bulletin de la Société Impériale des Naturalistes de Moscou, 1870; Parts 3 and 4.

DIARY

THURSDAY, NOVEMBER 16.

ROYAL SOCIETY, at 8.30.—Considerations on the Abrupt Change at Boiling or Condensing in Reference to the Continuity of the Fluid State of Matter: Prof. J. Thomson.—Magnetic Survey of the East of France in 1869: Rev. S. J. Perry and Rev. W. Sidgreaves.—Action of Hydriodic Acid on Codeia in presence of Phosphorus: Dr. C. R. A. Wright.—Corrections and Additions to the Memoir on the Theory of Reciprocal Surfaces: Prof. Cayley, F.R.S.—On the Dependence of the Earth's Magnetism on the Rotation of the Sun: Prof. Miller.

LINNEAN SOCIETY, at 8.—On the Floral Structure of *Impatiens fulva*, &c.: A. W. Bennett, F.L.S.—Remarks on *Dolichos uniflorus*: N. A. Dalzell.—*Flora Hongkongensis Supplementum*: H. F. Hance, Ph. D.

CHEMICAL SOCIETY, at 8.

LONDON INSTITUTION, at 7.30.—The Influence of Geological Phenomena on the Social Life of the People: Harry G. Seeley, F.G.S.

SUNDAY, NOVEMBER 19.

SUNDAY LECTURE SOCIETY, at 4.—The Gulf Stream, what it does and what it does not: W. B. Carpenter, M.D., F.R.S.

MONDAY, NOVEMBER 20.

LONDON INSTITUTION, at 4.—Consciousness: Prof. Huxley, F.R.S. (Course on Elementary Physiology).

ANTHROPOLOGICAL INSTITUTE, at 8.—Anthropological Collections from the Holy Land: Captain Richard F. Burton, F.R.G.S.

ENTOMOLOGICAL SOCIETY, at 7.

TUESDAY, NOVEMBER 21.

ZOOLOGICAL SOCIETY, at 9.—On the Osteology of the Marsupialia. (Part III.) Modifications of the Skeleton in the species of *Phascolomys*: Prof. Owen, F.R.S.—Report on Several Collections of Fishes recently obtained for the British Museum: Dr. A. Günther, F.R.S.

STATISTICAL SOCIETY, at 7.45.—The President's Opening Address.—Suggestions for the Collection of Local Statistics: J. T. Hammick.

WEDNESDAY, NOVEMBER 22.

GEOLOGICAL SOCIETY, at 8.—On some Devonian Fossils from the Witzenberg, S. Africa: Prof. T. Rupert Jones, F.G.S.—On the Geology of Fernando Noronha: Dr. Alex. Rattray.—Note on some Ichthyosaurian Remains from Kimmeridge Bay, Dorset: J. W. Hulke, F.R.S.—Appendix to a Note on a Wealden Vertebra: J. W. Hulke, F.R.S.

SOCIETY OF ARTS, at 8.—On the Present State of the Through Railway Communication to India: Hyde Clarke.

ROYAL SOCIETY OF LITERATURE, at 8.30.

THURSDAY, NOVEMBER 25.

ROYAL SOCIETY, at 8.30.

SOCIETY OF ANTIQUARIES, at 8.30.

LONDON INSTITUTION, at 7.30.—Science and Commerce, illustrated by the Raw Materials of our Manufactures. (I.) P. L. Simmonds.

CONTENTS

	PAGE
NEW WORKS ON MECHANICS	41
OUR BOOK SHELF	42
LETTERS TO THE EDITOR:—	
The Aurora Borealis of Nov. 9 and 10.—Rev. S. J. Perry; R. McClure; J. J. Murphy, F.G.S.; John Jeremiah; J. E. H. Gordon.	43
Structure of <i>Lepidodendron</i> .—Prof. W. C. Williamson, F.R.S.	45
Encke's Comet.—Thos. G. E. Elger.	45
The Science and Art Department	45
ECONOMICAL ALIMENTATION	45
THE TEMPERATURE PRODUCED BY SOLAR RADIATION. By J. Ericsson	46
NOTES	48
THE GROCINOSY OF THE APPALACHIANS AND THE ORIGIN OF CRYSTALLINE ROCKS.—III. By Prof. T. Sterry Hunt, F.R.S.	50
THE SCOTTISH SCHOOL OF GEOLOGY.—II. By Prof. A. Geikie, F.R.S.	52
SOCIETIES AND ACADEMIES	55
BOOKS RECEIVED	56
DIARY	56